

(Network Address Translation - Protocol Translation) is known, which allows translation of addresses of the IPv4 protocol into addresses of the IPv6 protocol (see <http://www.ietf.org/rfc/rfc2766.txt>). This known mechanism is not designed for data networks having a mobile function and furthermore has several known disadvantages such as e.g. inadequate network security.

The object of the invention is therefore to establish a method for processing data packets in a data network having a mobile function, which method allows the use of different network protocols in addition to the mobile function.

This object is achieved in accordance with the features in the independent patent claims. Developments of the invention are also derived from the dependent claims.

In a first embodiment, the claimed method is used for processing data packets which must be transmitted in a data network which has a mobile function from a terminal to a data source via a home computer of the data network. In this context, the terminal and the data source use a first network protocol, in which addresses of the first network protocol are assigned to the terminal and the data source, said addresses being represented in a first format. In contrast, a second network protocol is used in the data network, in which addresses of a second network protocol are assigned to the computers in the data network, said

Claims

1. A method for processing data packets which must be transmitted in a data network (N) which has a mobile function from a terminal (TE) to a data source (CN) via a home computer (HA) of the data network, wherein the terminal (TE) and the data source (CN) use a first network protocol, in which addresses of the first network protocol are assigned to the terminal (TE) and the data source (CN), said addresses being represented in a first format, and the data network (N) uses a second network protocol, in which addresses of the second network protocol are assigned to the computers in the data network (N), said addresses being represented in a second format, wherein the addresses of the first network protocol can also be represented in the second format, in which:
 - the terminal (TE) is assigned to a home network, wherein the terminal (TE) in the home network receives a home address (HAd) of the first network protocol, said home address being represented in the first format;
 - the terminal (TE) receives a second address (CoA) of the second network protocol, said second address being represented in the second format, wherein the second address (CoA) is the address in an external network (N2) outside of the home network (N1) if the terminal (TE) is situated in

- the external network;
- in a first processing step, a data packet containing the home address (HAd) represented in the first format as a source address and the address of the data source (CN) represented in the first format as a destination address is adapted in such a way that the adapted data packet contains the second address (HAd) represented in the second format as a source address and the address of the home computer (HA) represented in the second format as a destination address as well as the address of the data source (CN) represented in the second format as a further address.

2. The method as claimed in Claim 1, in which the home computer (HA) can process addresses of the first and of the second network protocol, wherein the home computer (HA) assigns the [lacuna] which is represented in the second format to the terminal (TE) and the home address is then converted into the first format in a conversion step.
3. The method as claimed in Claim 1 or 2, in which the first processing step and/or the conversion step is carried out by a data transmission device (MT) which is connected to the terminal (TE).

4. The method as claimed in Claim 3, in which the data transmission device (MT) is connected to the terminal (TE) via a PPP connection (point-to-point protocol).
5. The method as claimed in one of the preceding claims, in which the data packet which was adapted in the first processing step is changed in a second processing step in such a way that the changed data packet contains the home address (HAd) represented in the first format as a source address and the address of the data source (CN) represented in the first format as a destination address, wherein the address of the data source (CN) represented in the first format is determined from the further address of the data packet which was adapted in the first processing step.
6. The method as claimed in Claim 5, in which the data packet which was adapted in the first processing step is transmitted via the data network (N) to the home computer (HA) and the second processing step is carried out by the home computer (HA), wherein an assignment of the second address of the terminal (TE) to the home address is stored for the processing step in the home computer (HA), and the data packet which was changed in the second processing step is then transmitted to the data source (CN).

7. The method as claimed in one of the preceding claims, in which the first network protocol is IPv4 with or without Mobile-IPv4 support and the second network protocol is IPv6 with Mobile-IPv6 support, or in which the first network protocol is IPv6 with Mobile-IPv6 support and the second network protocol is IPv4 with or without Mobile-IPv4 support.
8. The method as claimed in Claim 7, in which the further address of the data packet which was adapted in the first processing step is stored in the routing header of the data packet.
9. A method for processing data packets which must be transmitted in a data network (N) which has a mobile function from a data source (CN) to a terminal (TE) via a home computer (HA) of the data network, wherein the terminal (TE) and the data source (CN) use a first network protocol, in which addresses of the first network protocol are assigned to the terminal (TE) and to the data source (CN), said addresses being represented in a first format, and the data network (N) uses a second network protocol, in which addresses of the second network protocol are assigned to the computers in the data network (N), said addresses being represented in a second format, wherein the addresses of the first network protocol can also be represented in the second format, in which:

- the terminal (TE) is assigned to a home network, wherein the terminal in the home network receives a home address (HAd) of the first network protocol, said home address being represented in the first format;
- the terminal (TE) receives a second address (CoA) of the second network protocol, said second address being represented in the second format, wherein the second address (CoA) is the address in an external network (N2) outside of the home network (N1) if the terminal (TE) is situated in the external network;
- in a first processing step, a data packet containing the address of the data source (CN) represented in the first format as a source address and the home address (HAd) represented in the first format as a destination address is adapted in such a way that the adapted data packet contains the address of the home computer (HA) represented in the second format as a source address and the second address (CoA) of the terminal represented in the second format as a destination address as well as the address of the data source (CN) represented in the second format as a further address.

10. The method as claimed in Claim 9, in which the data packet which must be adapted is transferred from the

data source (CN) to the home computer (HA) and the first processing step is carried out by the home computer (HA), wherein an assignment of the second address (CoA) to the home address (HAd) of the terminal (TE) is stored for the processing step in the home computer (HA).

11. The method as claimed in Claim 9 or 10, in which the data packet which was adapted in the first processing step is changed in a second processing step in such a way that the changed data packet contains the address of the data source (CN) represented in the first format as a source address and the home address (HAd) represented in the first format as a destination address, wherein the address of the data source (CN) represented in the first format is determined from the further address of the data packet which was adapted in the first processing step.
12. The method as claimed in Claim 11, in which the data packet which was adapted in the first processing step is transmitted via the data network (N) to a data transmission device (MT) which is connected to the terminal (TE) and the second processing step is carried out by the data transmission device (MT), wherein the data packet which was changed in the second processing step is then transmitted from the data transmission device to the terminal (TE).

13. The method as claimed in Claim 12, in which the data transmission device (MT) is connected to the terminal (TE) via a PPP connection (point-to-point protocol).
14. The method as claimed in one of the preceding claims, in which the first network protocol is IPv4 with or without Mobile-IPv4 support and the second network protocol is IPv6 with Mobile-Ipv6 support, or in which the first network protocol is IPv6 with Mobile-Ipv6 support and the second network protocol is IPv4 with or without Mobile-IPv4 support.
15. The method as claimed in Claim 14, in which the further address of the data packet which was adapted in the first processing step is stored in the routing header of the data packet.
16. A data transmission device which is configured in such a way that the first processing step in accordance with Claim 1 and the first processing step in accordance with Claim 9 can be carried out using the data transmission device (MT).
17. The data transmission device as claimed in Claim 16, wherein the data transmission device (MT) is a mobile device, in particular a mobile radio device.

18. A data network which has a mobile function for transmitting data between data sources (CN) and terminals (TE), wherein the data network is configured in such a way that a method in accordance with one of the Claims 1 to 8 and a method in accordance with one of the Claims 9 to 16 can be carried out.
19. The data network as claimed in Claim 18, in which a part of the data network is the Internet.
20. The data network as claimed in Claim 18 or 19, in which the home network (N1) and/or the external network (N2) is a wireless network which is based on GPRS and/or Wireless LAN and/or Bluetooth and/or UMTS and/or CDMA2000 in particular.